

New biogeographic records in the avifauna of Peleng Island (Sulawesi, Indonesia), with taxonomic notes on some endemic taxa

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SUMMARY.—The island of Peleng is the largest of the Banggai archipelago. It is 14 km south-east of eastern Sulawesi and 80 km west of the Sula Islands. However, despite Peleng's low degree of isolation, its bird community is characterised by unusually high endemism, with a surprisingly pronounced Sula avifaunal element. Little is known about the birds of Peleng, as the island has been largely neglected by collectors and field ornithologists alike. We present new data on the birds of Peleng, partially based on an intensive recent survey of the highland avifauna in the west of the island, but also on long-term research and conservation work at lower elevations. We report new elevational data for 23 species, as well as 16 species new for the island. Most of the new island records fill artefactual gaps in the distribution of species known to occur on Sulawesi to the west and on the Sula Islands to the east. Four new island records are genuine eastward range extensions of Sulawesi taxa or westward extensions of Sula species. We provide details on the discovery, morphology and vocalisations of up to five apparently undescribed taxa, with one or two probably new species to science, although their scientific description awaits the collection of specimens. Lastly, we comment on the taxonomy of several Banggai birds that require urgent systematic revision using genetic or vocal data.

The Banggai archipelago lies off the eastern peninsula of Sulawesi (Fig. 1). It covers almost 3,000 km² and numbers four main islands, with Peleng (2,406 km²) the largest (Fig. 1). Peleng is immediately adjacent to the Sulawesi mainland, and the narrow Peleng Strait separating the two islands is just 14 km wide at its narrowest point. The island is divided into a large western, small central and intermediate eastern landmass, the central one being connected to the others by narrow isthmuses. Whilst the central and eastern parts are low-lying and barely exceed 500 m, the west rises to 969 m in its interior, with c.40% of its land above 700 m (Fig. 1). Despite Peleng's geographical predominance, the archipelago takes its name from the second-largest island, Banggai (Fig. 1), formerly the cultural hub of the region. To the east, a string of smaller islands almost connects the Banggai archipelago with Taliabu, the largest island of the Sula group (Fig. 1). The nearest distance from Banggai to Taliabu slightly exceeds 80 km.

Despite its immediate vicinity to Sulawesi, the avifauna of the Banggai Islands exhibits many differences to that of its larger neighbour (see, e.g., White & Bruce 1986). The number of range-restricted and near-endemic bird species on the Banggai Islands is unusual compared to other Sulawesi satellite islands of a similar size and distance from the mainland, such as Muna or Butung, which display almost no avian endemism. The Banggai archipelago shares much of its endemism with the Sula Islands to the east (ICBP 1992, Sujatnika *et al.* 1996, Stattersfield *et al.* 1998, Indrawan 2004), despite the distance to the Sula Islands being more than five times greater than to Sulawesi (Fig. 1). Consequently, the Banggai and Sula

Islands have been accorded status as an Endemic Bird Area (ICBP 1992, Sujatnika *et al.* 1996, Stattersfield *et al.* 1998). In their initial assessment using the distributional and taxonomic knowledge of the day, ICBP (1992) listed nine range-restricted bird species shared by the two archipelagos.

Whilst the faunal connection between Banggai and Sula has long puzzled zoologists, modern geological, palaeoclimatic and bathymetric data largely explain these biogeographic ties. Despite the vicinity to the Sulawesi mainland, the geological history of the Banggai archipelago is tied to that of the Sula Islands (Hall 2002). The two groups are composed of metamorphic and igneous continental rocks of Australian–New Guinea affinities, surrounded by shallow and deep marine Palaeozoic and Mesozoic sediments (Hall 2002). Together, they have been drifting west towards Sulawesi, closely approaching it within the last four million years (Hall 2002). Apart from their shared geological origin, the Sula and Banggai islands have also repeatedly been connected during c.20 glacial epochs within the last three million years that each lasted c.10,000–50,000 years. These connections arose when glacial periods caused global sea levels to fall by up to 130 m (Voris 2000, Lambeck & Chappell 2001, Siddall *et al.* 2003, Bintanja *et al.* 2005, Thompson & Goldstein 2005, Caputo

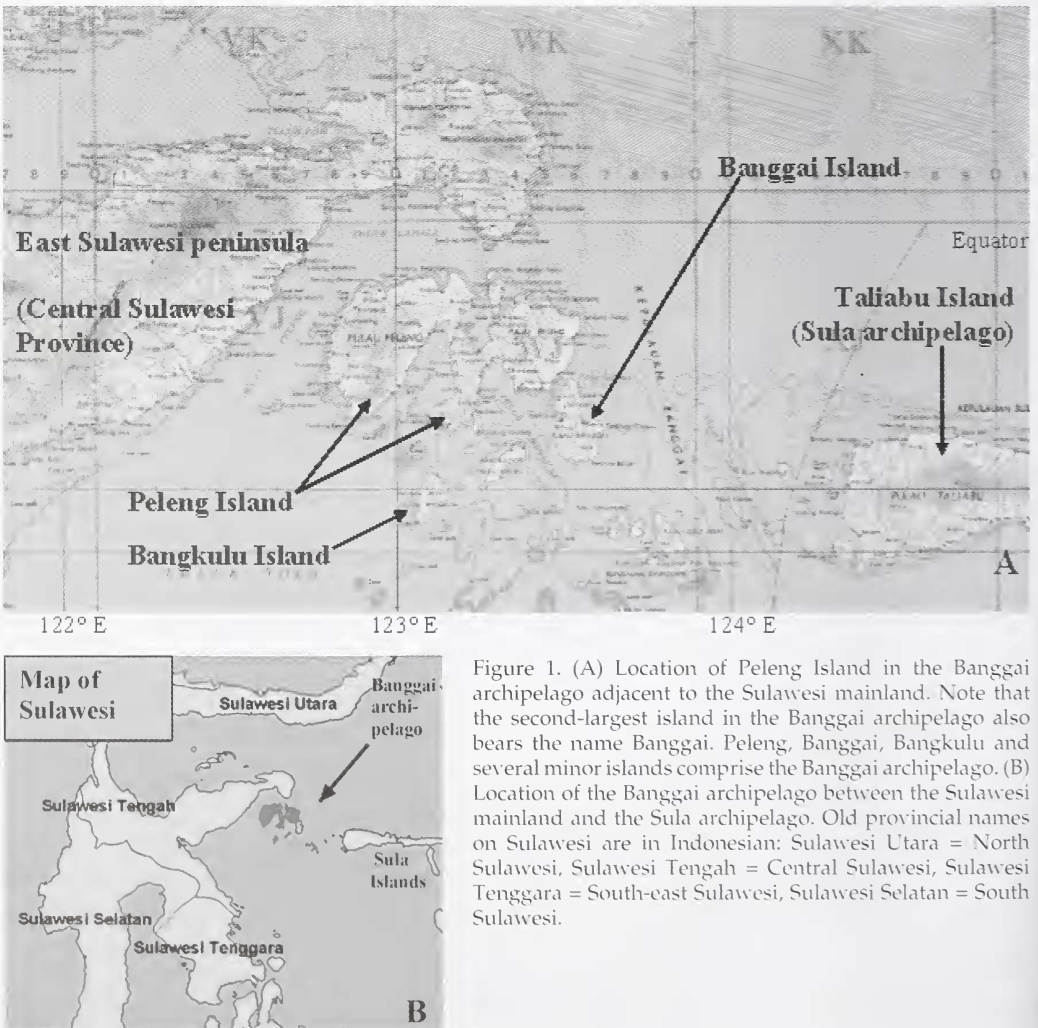


Figure 1. (A) Location of Peleng Island in the Banggai archipelago adjacent to the Sulawesi mainland. Note that the second-largest island in the Banggai archipelago also bears the name Banggai. Peleng, Banggai, Bangkulu and several minor islands comprise the Banggai archipelago. (B) Location of the Banggai archipelago between the Sulawesi mainland and the Sula archipelago. Old provincial names on Sulawesi are in Indonesian: Sulawesi Utara = North Sulawesi, Sulawesi Tengah = Central Sulawesi, Sulawesi Tenggara = South-east Sulawesi, Sulawesi Selatan = South Sulawesi.

2007) exposing areas of shallow sea, such as along the string of islands that connect the Sula and Banggai archipelagos. Despite their narrow extension, the Peleng Strait between Sulawesi and Peleng—in contrast—never accommodated a landbridge, being characterised by a deep-sea trench c.400–700 m deep (Becker *et al.* 2009).

Its high level of endemism and easy accessibility notwithstanding, the Banggai group is one of the least-explored avifaunal hotspots in Indonesia. Whilst the Sula Islands have been targeted by recent avifaunal work (Davidson *et al.* 1991, Stones *et al.* 1997, Rheindt 2010; B. King *in litt.* 2006; FV unpubl.), the Banggai archipelago has been less visited. MI has undertaken periodic zoological research and long-term conservation work in the islands for 18 years (e.g. Indrawan *et al.* 1993, 2009). Since 2004, the Celebes Bird Club (2006, 2007, 2008) has joined MI's group, with a more recent focus on the largely unknown montane areas of Peleng.

Peleng has undergone dramatic forest conversion in the past decades. The low-lying east and centre of the island may no longer harbour significant primary forest, and all we have seen here are patches of degraded secondary forest and smaller remnants of older secondary forest (MI, FER & FV pers. obs.). The western lowlands are also largely deforested, but habitat quality improves higher, with substantial patches of secondary forest above 600 m grading into primary forest at c.800 m (MI, DER & FV pers. obs.). Older villagers confirm that tall forest reached well into the lowlands 30–40 years ago.

This paper addresses our limited knowledge of the avifauna of the Banggai Islands. Based on our long-term research and conservation work there (MI) and a recent intensive avian inventory of the unexplored highlands of Peleng (FER, FV, DDP, AR, MI), we present data on 16 new bird species for the Banggai archipelago, including preliminary documentation of 1–5 undescribed subspecies and / or species. We also present data on 23 elevational range extensions or new elevational data from the Banggai Islands. In addition, we provide data that resolves or questions the taxonomic status of several endemic taxa that require phylogeographic attention.

Study area and Methods

Over the past 18 and five years, respectively, MI and the Celebes Bird Club have periodically conducted ornithological research at study sites throughout the Banggai Islands. Details of some of these were presented by Indrawan *et al.* (1991). The montane west of Peleng, around Tataba, was visited on 2–7 October 2004 (MI & I. Tinulele), 12 September–11 October 2006 (MI, Y. Masala, A. Maleso & F. Masala), 27 April–17 May 2007 (MI, Y. Masala, A. Maleso, F. Masala & D. S. Katiandagho), 18 January–9 February 2008 (same observers as previous) and 23 March–13 April 2009 (DDP & AR; Celebes Bird Club). FER & FV visited the same area on 22–31 March 2009—and FV alone on 2–5 April 2009—and observed birds over a broad spectrum of habitats and elevations, from coastal coconut plantations to montane primary forest above 900 m. Subsequently, FV visited the lowlands of Peleng around the capital of Salakan on 5–8 April 2009 and searched for birds in degraded secondary lowland forest from sea level to c.100 m. Almost two weeks later, FER visited the same site on 20–21 April 2009. Since 1991, the eastern lowlands including Salakan were also subject to archipelago-wide multiple surveys by Indrawan *et al.* (1993, 1997). The south-east part of western Peleng was explored to c.900 m on 1–7 May 2007 (MI & D. S. Katiandagho unpubl.).

FV took bird photographs using a Canon Eos 40D digital camera and 100–400 mm lens, while FER used a Panasonic Lumix DMC-FZ18. Sound-recordings were made using an Edirol R-09 HR and a ME-66 Sennheiser directional microphone (FV) or a Sony TCM-200DV cassette recorder with inbuilt microphone (FER). Sonograms were prepared using Syrinx

version 2.6h by John Burt (available at www.syrinxpc.com). Sound-recordings will be uploaded to the xeno-canto online sound library (www.xeno-canto.org/asia) provided their quality is sufficient. In some cases, we have supplemented our data with our unpublished bio-acoustic material from elsewhere.

Species accounts

The following details some of the species recorded on Peleng during our field work, being new island records, new elevational records or noteworthy from a distributional or taxonomic perspective. Order and nomenclature principally follow White & Bruce (1986) and Coates & Bishop (1997) Species recorded by us but not included in these accounts are listed in Table 1.

TABLE 1

Species encountered during field work in Peleng but not included in the in the main text.

Species name	Comments
Purple Heron <i>Ardea purpurea</i>	1 near sea level
Little Egret <i>Egretta garzetta</i>	1 near sea level
Pacific Reef Egret <i>E. s. sacra</i>	1 near sea level
Little Heron <i>Butorides striata javanica</i>	2 near sea level
Brahminy Kite <i>Haliastur indus intermedius</i>	-
Barred Honey Buzzard <i>Pernis c. celebensis</i>	1 at c.750 m
Sulawesi Serpent Eagle <i>Spilornis rufipectus sulaensis</i>	1 at c.700 m, 1 near sea level
Black Eagle <i>Ictinaetus m. malayensis</i>	1 at c.350 m
Vinous-breasted Sparrowhawk <i>Accipiter rhodogaster sulaensis</i>	2 adults at a nest at c.550 m
Spotted Kestrel <i>Falco moluccensis microbalus</i>	near sea level
Sula Scrubfowl <i>Megapodius bernsteinii</i>	several seen and sound-recorded at c.100 m in degraded forest near Salakan (eastern Peleng)
Red-backed Buttonquail <i>Turnix maculosus kinneari</i>	1 heard in agricultural land at c.100 m near Salakan (eastern Peleng)
Slaty-legged Crake <i>Rallina eurizonoides minahasa</i>	sound-recorded at c.650 m
Barred Rail <i>Gallinallus torquatus sulcirostris</i>	several family groups heard and seen near sea level in eastern Peleng
White-breasted Waterhen <i>Amanorornis phoenicurus lencomelana</i>	common at sea level in eastern Peleng
Common Sandpiper <i>Actitis hypoleucos</i>	1 on a beach near Salakan (eastern Peleng)
Sulawesi Black Pigeon <i>Turacoena manadensis</i>	Several near sea level; 1 seen and <4 heard at c.750–900+ m
Brown Cuckoo Dove <i>Macropygia amboinensis albicapilla</i>	common from sea level to at least 800 m
Emerald Dove <i>Chalcophaps i. indica</i>	-
Black-naped Fruit Dove <i>Ptilinopus melanospilus chrysorrhous</i>	common from sea level to 850 m
Grey-cheeked Green Pigeon <i>Treron g. griseicanda</i>	near sea level
Ornate Lorikeet <i>Trichoglossus ornatus</i>	near sea level
Blue-backed Parrot <i>Tanygnathus s. sumatranus</i>	near sea level
Rusty-breasted Cuckoo <i>Cacomantis sepulchralis virescens</i>	common from sea level to at least 800 m
Black-billed Koel <i>Endynamis melanorhynchus</i>	common from sea level to over 900 m
Lesser Coucal <i>Centropus bengalensis javanensis</i>	common from sea level to over 900 m
Great Eared Nightjar <i>Eurostopodus macrotis macropterus</i>	occasional to common to over 900 m
Grey-rumped Treeswift <i>Hemiprocne longipennis wallacii</i>	-

Glossy Swiftlet <i>Collocalia e. esculenta</i>	common from sea level to over 900 m
Great-billed Kingfisher <i>Halcyon melanorhyncha dichrorhyncha</i>	several along the coast; 1 photographed on a beach in eastern Peleng had an extensive red base to the lower mandible (not shown)—see Indrawan <i>et al.</i> (1997) for comment on variability
Pacific Swallow <i>Hirundo tahitica javanica</i>	near sea level
Golden-headed Cisticola <i>Cisticola exilis rusticus</i>	1 in agricultural land at c.100 m
Flyeater <i>Gerygone sulphurea flaveola</i>	common in degraded habitat from sea level to 550 m
Grey-streaked Flycatcher <i>Muscicapa griseisticta</i>	still common on 22–31 March 2009, but absent on 3–8 April and 20–21 April 2009
Island Monarch <i>Monarcha c. cinerascens</i>	common near sea level
White-breasted Woodswallow <i>Artamus leucorhynchus albiventer</i>	near sea level to at least 700 m
Ivory-backed Woodswallow <i>A. monachus</i>	near sea level
Grosbeak Starling <i>Scissirostrum dubium</i>	common near sea level
Moluccan Starling <i>Aplonis mysolensis sulaensis</i>	common near sea level
Brown-throated Sunbird <i>Anthreptes malacensis extremus</i>	common near sea level
Olive-backed Sunbird <i>Nectarinia jugularis robustirostris</i>	common near sea level
Black-faced Munia <i>Lonchura molucca</i>	common near sea level

MALAYAN NIGHT HERON *Gorsachius melanolophus kutteri*

An immature was flushed from a trail in primary forest in western Peleng at c.850 m (FV, FER; 28 March 2009). The bird landed a few metres away and was observed for c.20 seconds. Subsequently, it flew to a nearby tree, where it was observed for two minutes and was photographed (Fig. 2). Confusion with the similar Japanese Night Heron *G. goisagi* can be eliminated by the presence of white markings on the black crown. *Gorsachius* night herons are usually cryptic and shy, and are rarely observed. In Wallacea, *G. melanolophus* is known only from the Talaud Islands and from a single previous record on Peleng, assumed to be a straggler (Coates & Bishop 1997). This second record on Peleng at the end of the northern winter suggests that it may be a regular winter visitor, passage migrant or even resident.

RUFOUS-BELLIED EAGLE *Hieraaetus kienerii formosus*

An adult was observed over degraded scrub and woodland at c.300 m in western Peleng (FV; 4 April 2009). The presence of a black ‘helmet’ contrasting with the white throat and rufous belly confirmed the identification. This is the first record for the Banggai Islands, although Indrawan *et al.* (1997) mentioned a probable sighting on 31 August 1996. The species occurs on Sulawesi and the Sula Islands, so the Peleng record closes this gap. Despite the paucity of historical records on Sulawesi, there have been many records in the last 30 years (Davidson *et al.* 1991). The discrepancy between historical and modern records suggests that *H. kienerii* might be expanding in range and / or abundance, perhaps due to habitat alteration. The Peleng record may have to be interpreted within this context, or the recent increase in sightings may be an artefact of improved observer coverage.

SPOTTED DOVE *Streptopelia chinensis tigrina*

One was heard and then seen in degraded lowland scrub near Salakan (eastern Peleng) at c.100 m (FER; 21 April 2009). Identification was based on the distinctive white-spotted black hindneck collar. MI previously saw the species in open habitats on Peleng, but did not note locations and dates, as its occurrence is unsurprising. These are the first records for the island. Spotted Dove is widespread in Asia and is thought to have been introduced

to Wallacea. It is currently expanding its range in response to habitat modification (Coates & Bishop 1997). The species has previously been recorded from Labobo in the Banggai archipelago (Coates & Bishop 1997). These Peleng records confirm ongoing expansion through the islands.

GREEN IMPERIAL PIGEON *Ducula aenea sulana*

Heard and seen occasionally in primary forest from c.750 to over 900 m in montane western Peleng (FER, FV; 22–23 March 2009). Also encountered occasionally in degraded lowland forest near sea level in eastern Peleng on 5–8 April 2009 (FV), 20–21 April 2009 (FER) and on unspecified dates (MI). Represented on the Banggai Islands by the range-restricted subspecies *sulana*, which otherwise occurs only on the Sula Islands (White & Bruce 1986, Coates & Bishop 1997), previous elevational data for *D. a. sulana* have been limited to Taliabu, where recent work revealed its presence to c.1,000 m (Rheindt 2010). Our new Peleng records establish a similarly wide elevational range on the Banggai archipelago.

WHITE-BELLIED IMPERIAL PIGEON *Ducula forsteni*

An adult was observed in the canopy of secondary forest in montane western Peleng at c.700 m on 2 October 2004 (MI). On a separate but undated occasion, the species was heard above 500 m in the south-east of western Peleng (MI). Subsequently, on 23–30 March 2009, *D. forsteni* was heard occasionally and seen in flight on a daily basis in forest from c.750 m to over 900 m in the same region (FV, FER). Identification was based on the distinctly grey underparts and head, and the green back and breast-band of this bulky species. The calls confirmed the identification, strongly resembling the hollow deeply resonant vocalisations we have heard on Sulawesi and Taliabu. These are the first records on the Banggai Islands, and close a gap in the species' range between Sulawesi and Taliabu (White & Bruce 1986, Coates & Bishop 1997).

SUPERB FRUIT DOVE *Ptilinopus superb*

Common in secondary and primary forest from 400 m to over 900 m in montane western Peleng (FV, FER; 23–31 March 2009), where it was sound-recorded. Additionally, MI, DDP & AR commonly heard the species in western highland Peleng above 500 m on several occasions, including on 18 January–9 February 2008 and 23 March–13 April 2009. These are the first records for the Banggai Islands. Identification of this easily recognised species was confirmed by sound-recordings (Fig. 3). Superb Fruit Dove occurs in Sulawesi (*P. s. temminckii*) and the northern Moluccas (*P. s. superb*), but peculiarly appears absent from the Sula Islands (White & Bruce 1986, Coates & Bishop 1997). The population on Peleng probably has closest affinities with *P. s. temminckii*.

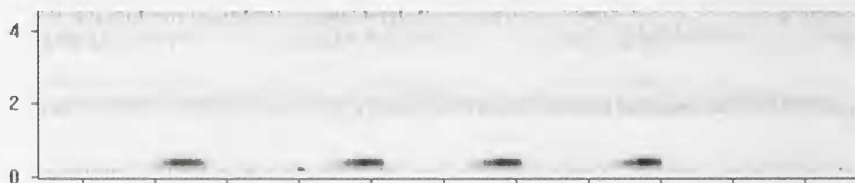


Figure 3. Recording of a hooting call series of Superb Fruit Dove *Ptilinopus superb* at c.800 m on Peleng. X-axis = time (0.5 seconds per tick), y-axis = frequency (2 kHz per tick). Recording by F. Verbelen.

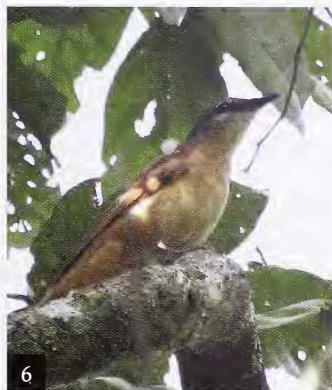
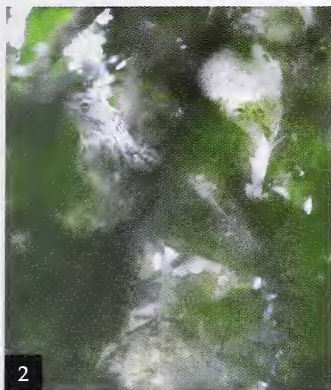


Figure 2. Malayan Night Heron *Gorsachius melanolophus kutteri*, western Peleng at c.850 m, 28 March 2009 (F. Verbelen)

Figure 4. Golden-mantled Racquet-tail *Prioniturus platurus*, Peleng at over 900 m, March 2009 (F. Verbelen). Note the conspicuous grey sheen to the shoulder that may be distinctive of the Peleng population.

Figure 6. Female Common Cicadabird *Coracina tenuirostris pelingi*, Peleng at c.700 m, March 2009 (F. Verbelen). Note the extensive cinnamon hue to the unstreaked underparts characteristic of this taxon.



Figure 7. Hair-crested Drongo *Dicrurus hottentottus banggaiensis*, Peleng at c.600 m, March 2009 (F. Verbelen). Note the greyish irides.

Figure 9. Slender-billed Crow *Corvus enca*, Peleng near sea level, April 2009 (F. Verbelen). Note the long, heavy bill (*contra* the vernacular name).

Figure 11. Red-and-black Thrush *Zoothera mendeni*, lowland eastern Peleng, April 2009 (F. E. Rheindt). Note the all-black underparts. This may be the first photograph of a live bird.



Figure 15. 'Peleng Leaf Warbler' *Phylloscopus* taxon novum, c.800 m on west Peleng, March 2009 (F. Verbelen). Note the yellowish tinge to the underparts slightly contrasting with the off-white throat and upper breast.

Fig. 18. Drab Whistler *Pachycephala griseonota*, Peleng at c.100 m (F. Verbelen). Note the strong contrast between the dark face and the white throat.

BANGGAI FRUIT DOVE *Ptilinopus subgularis*

Banggai Fruit Dove has long been considered conspecific with *P. s. epia* of Sulawesi and *P. s. mangoliensis* of Sula (e.g. White & Bruce 1986, Coates & Bishop 1997). However, a forthcoming analysis suggests that *subgularis* on the Banggai Islands merits biological species status, under the English name Banggai Fruit Dove (Rheindt & Verbelen in prep.). Two were observed foraging in the mid-canopy at a forest edge in montane western Peleng at c.800 m (MI; 3 October 2004). In the same region, MI also heard the species' distinct vocalisation on several undated occasions above 600 m, rarely lower. An active nest attended by an unsexed adult was found at c.800 m on 3 May 2007; it was a simple platform of small branches (MI). On 23–31 March 2009, the species was commonly heard in secondary to primary forest at c.500–900+ m in montane western Peleng (FER, FV), and was photographed once above 900 m (FV). Also photographed and sound-recorded in degraded forest in eastern Peleng near sea level on 5–8 April 2009 (FV) and 20–21 April 2009 (FER). These are the first published elevational data for the species.

GOLDEN-MANTLED RACQUET-TAIL *Prioniturus platurus*

Found in secondary and primary forest in montane western Peleng from c.650 m, becoming noticeably commoner at higher, undisturbed elevations (FV, FER; 23–31 March 2009). It was common around mountaintops above 900 m (FV, FER). On various visits to western Peleng, MI, DDP & AR also observed the species at 600–900 m on a near-daily basis. It was encountered occasionally in degraded forest in eastern Peleng near sea level on 5–8 April 2009 (FV) and 20–21 April 2009 (FER), where the species was photographed (Fig. 4) and sound-recorded. These are the first data on the elevational range and status of the species on Peleng. The Peleng population is currently ascribed to nominate *P. p. platurus* from Sulawesi, whilst those in the Sula archipelago are treated as an endemic subspecies *P. p. sinerubris* (White & Bruce 1986, Coates & Bishop 1997). However, birds on Peleng possess a distinctive grey cast to their wing-coverts (Fig. 4; see also Indrawan *et al.* 1997) that we have neither seen in nominate birds from Sulawesi nor in *P. p. sinerubris* from Taliabu (FV & FER pers. obs.). The population on Peleng might constitute an undescribed endemic subspecies.

SULA HANGING PARROT *Loriculus sclateri ruber*

Common in most habitats in montane western Peleng, ranging from coconut plantations to primary forest, from sea level to almost 900 m (FV, FER; 22–31 March 2009). Also common in degraded lowland forest near sea level around Salakan in eastern Peleng on 5–8 April 2009 (FV) and 20–21 April 2009 (FER), where it was photographed and sound-recorded (FV). MI, DDP & AR commonly observed the species in a similar range of habitats on Peleng during 18 January–9 February 2008 and 23 March–13 April 2009. We follow Collar (2007) in recognising the two distinct taxa from Sula and Banggai as *L. sclateri*, separate from Moluccan Hanging Parrot *L. amabilis*. Because of its recent recognition as a species, there have been few previous data on the elevational range and status of Sula Hanging Parrot. Indrawan *et al.* (1997) commonly saw the species in the lowlands but also encountered one at 600 m on Peleng. Davidson *et al.* (1991) encountered it only to 250 m on Taliabu, but it has subsequently been found above 700 m (Rheindt 2010). Our Peleng sightings confirm the broad elevational and habitat tolerance of this versatile species.

MOLUCCAN KING PARROT *Alisterus amboinensis versicolor*

Singles, pairs and small groups of 3–4 were occasionally seen in montane western Peleng at 800–900 m (MI; 2004, 2006, 2007), and 1–2 seen on only three occasions in secondary

or primary forest in montane western Peleng at c.850–900 m (FE, FV; 25–30 March 2009). FV also photographed and sound-recorded the species in disturbed forest near sea level around Salakan in eastern Peleng (5–8 April 2009). Represented on Peleng by the endemic *A. a. versicolor* (White & Bruce 1986, Coates & Bishop 1997), but no data have been published on this subspecies' elevational range and status. It may be widely overlooked due to its cryptic and retiring nature and / or partially nocturnal behaviour (MI pers. obs.).

DRONGO CUCKOO *Surniculus lugubris musschenbroeki*

Repeated bouts of this species' distinctive ascending call series were heard in degraded secondary forest near Salakan in eastern Peleng at c.100 m (FER; 20–21 April 2009). This is the first record for the Banggai Islands (White & Bruce 1986, Coates & Bishop 1997). Although the call was not sound-recorded, confusion with other species can be eliminated given the unmistakable vocalisations of *S. lugubris* (a repeated series of level notes swiftly ascending the scale at roughly equal frequency intervals, unlike any other cuckoo's vocalisations). The species occurs on adjacent Sulawesi (Coates & Bishop 1997) and has presumably been overlooked in Peleng by previous workers, perhaps because *S. lugubris* is silent for much of the year.

OWL *Tyto* sp.

On 26 March 2009 at 19.00 h, FV & FER heard once but failed to sound-record a nearby *Tyto* in primary forest above 900 m in western Peleng. FER considered it to have a distinct hissing quality strongly reminiscent of Minahassa Masked Owl *T. inexpectata* and unlike the more screeching Sulawesi Masked Owl *T. rosenbergii*. However, FV was sceptical of the identity. Independently, on 4 April 2009, FV heard a *Tyto* vocalisation that he considered consistent with *T. rosenbergii* in an agricultural area near forest edge at 550 m, in an area of western Peleng where villagers are familiar with this sound. During various surveys of secondary forest, cultivation and open habitat in western Peleng from sea level to c.700 m, MI has heard *Tyto* vocalisations, presumably *T. rosenbergii*, which he described as 'not hissing, but more prominent screeching, like a door on a rusty hinge'. According to White & Bruce (1986) and Coates & Bishop (1997), the genus *Tyto* is represented on Peleng by the endemic *T. rosenbergii pelingensis*. The location where FV & FER heard the owl on 26 March 2009 was in primary forest >4 km from the nearest degraded areas. All other records were made in or near open or secondary habitat, and were considered (by the observers, FV & MI, respectively) consistent with the screeching vocalisation of *T. rosenbergii*. The occurrence of *Tyto* owls inside dense forest on Peleng raises the possibility that two *Tyto* taxa occur on the island. On Sulawesi, *T. rosenbergii* is usually known from open habitat and light woodland, being replaced in the forest interior by *T. inexpectata*. An important first step in elucidating the taxonomic affinities of *Tyto* owls on Peleng is to analyse the type of *pelingensis* in comparison with other taxa, and to acquire photographs or specimens of *Tyto* owls in different habitats on Peleng.

BANGGAI SCOPS OWL *Otus mendeni*

Common in degraded woodland to primary forest from sea level to over 900 m in western Peleng (FV, FER; 22–31 March 2009). During various visits to western Peleng, MI heard its call practically every night. Also heard and seen in the degraded lowlands of eastern Peleng (FV; 5–8 April 2009). It was photographed and sound-recorded (FV, MI). Our records provide the first data on the elevational range and habitat tolerance of this species. Taxonomic controversy has surrounded scops owls on the Banggai Islands (Indrawan *et al.* 1997). Banggai Scops Owl is often considered a subspecies of Moluccan Scops Owl *O.*

magicus (e.g. Coates & Bishop 1997). However, its vocalisations differ dramatically from the latter and from Sulawesi Scops Owl *O. manadensis*. It presumably has much closer affinities to Sula Scops Owl *O. sulaensis*, itself usually considered a subspecies of *O. magicus*. Sula and Banggai Scops Owls are each afforded species status by a forthcoming taxonomic proposal partially based on the vocal and photographic material obtained during our work on Peleng (King *et al.* in prep.).

WHITE-THROATED NEEDLETAIL *Hirundapus caudacutus*

Approximately six singles and a flock of 15+ seen in western Peleng at c.750 to over 900 m (FV & FER; 25 March–4 April 2009). Most sightings were prolonged and the observers confirmed the presence of an extensive white throat, which eliminates the unlikely Purple Needletail *H. celebensis* of Sulawesi and the Philippines, and Silver-backed Needletail *H. cochinchinensis*, which breeds in mainland Asia and winters south-east to Java. One was photographed. These records are the first for the Banggai Islands. However, the species is a widespread passage migrant in Wallacea (White & Bruce 1986, Coates & Bishop 1997), making occurrence on Peleng unsurprising. The lack of previous records is presumably due to low observer activity.

SULAWESI SWIFTLET *Aerodramus sororum*

On 27 March 2009, from a primary forest clearing above 900 m, FER & FV observed a swiftlet flock containing c.10 *A. sororum* and 20 Uniform Swiftlets *A. vanikorensis*, as well as periodically several Glossy Swiftlets *Collocalia esculenta*. Subsequently, monospecific flocks of *A. sororum* were seen and photographed at sea level in western Peleng on 31 March 2009 (FER, FV). These are the first records of Sulawesi Swiftlet on the Banggai Islands. Identification was made under optimal conditions and involved direct comparison with the two other species. We follow Rheindt & Hutchinson (2007) in recognising the distinctive Sulawesi taxon *A. sororum* as a separate species from Halmahera Swiftlet *A. infuscatus* and Seram Swiftlet *A. ceramensis*. The birds we saw in Peleng were identical to *A. sororum* in their pale rump, eliminating confusion with the much darker rumped *A. infuscatus* of adjacent northern Maluku.

UNIFORM SWIFTLET *Aerodramus vanikorensis*

On 27 March 2009, from a primary forest clearing above 900 m, FER & FV observed a swiftlet flock containing c.20 *A. vanikorensis* and c.10 Sulawesi Swiftlets, as well as periodically several Glossy Swiftlets *Collocalia esculenta*. This is the first record of *A. vanikorensis* on the Banggai Islands. Identification was made under optimal conditions and involved direct comparison with the other two species. Compared to *C. esculenta*, the larger size and uniform dark underparts were noted, whilst unlike *A. sororum* the rump was concolorous with the rest of the upperparts. The absence of a pale rump was confirmed in good light on individuals at close range and directly compared with *A. sororum* at the same distance. We can therefore eliminate other swiftlets known from the region. The taxonomic affinities of Uniform Swiftlet on Peleng require investigation. On the adjacent Sulawesi mainland, the species is represented by *A. v. aenigma*, which might breed in the Banggai archipelago or visit Peleng on foraging trips.

COLLARED KINGFISHER *Halcyon c. chloris*

As well as numerous observations in the lowlands, the species was commonly seen and heard in degraded woodland and secondary forest to c.900 m in western Peleng (FV & FER, 22–31 March 2009; MI, 27 April–17 May 2007). The species has a wide elevational range

from sea level to 1,850 m on Sulawesi (White & Bruce 1986, Coates & Bishop 1997). These are the first altitudinal data for the species on the Banggai Islands.

RUDDY KINGFISHER *Halcyon coromanda pelingensis*

Common in degraded lowland forest near sea level in eastern Peleng on 5–8 April 2008 (FV) and 20–21 April 2008 (FER), where it was sound-recorded and photographed (FV). On 24 March 2009, it was seen in old secondary forest in the highlands of western Peleng at c.750 m (FV). On the Banggai Islands, Ruddy Kingfisher is represented by the endemic *H. c. pelingensis* (White & Bruce 1986, Coates & Bishop 1997). Our records considerably extend its elevational range in Wallacea. *H. c. rufa* on Sulawesi has been recorded to 200 m (Coates & Bishop 1997), whilst *H. c. sulana* on Taliabu is known to 500 m (Rheindt 2010).

RED-BELLIED PITTA *Pitta erythrogaster dohertyi*

Heard on a daily basis in tall forest at c.550–750 m in montane western Peleng (FV, FER; 22–31 March 2009), although only one was seen well and photographed. During subsequent visits to the degraded lowlands near Salakan in eastern Peleng (5–8 April 2009, FV; 20–21 April 2009, FER), the species was commonly heard. FV obtained sound-recordings (Fig. 5) and photographs. *P. erythrogaster* is represented on the Banggai and Sula islands by the somewhat distinct-looking endemic *P. e. dohertyi* (Bruce & White 1986, Coates & Bishop

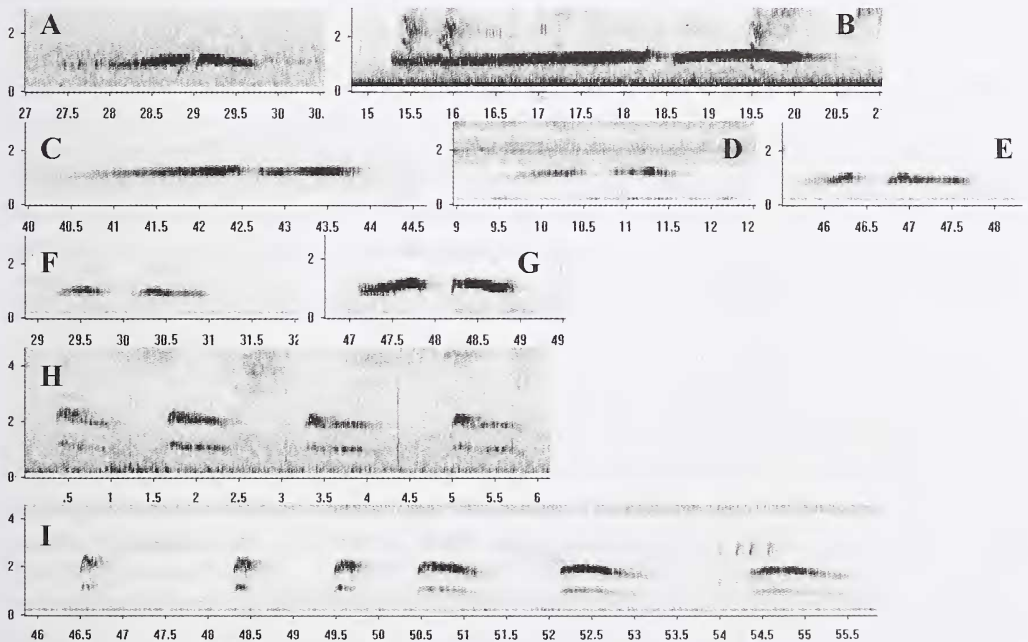


Figure 5. Sonograms of Red-bellied Pitta *Pitta erythrogaster* vocalisations on Peleng sound-recorded by the authors, and on neighbouring islands for comparison. X-axis = time in seconds (0.5 seconds per tick), y-axis = frequency in kHz (2 kHz per tick). A–G involve the conventional disyllabic call, H–I refer to a less common secondary call, but both call types are given by *P. e. dohertyi* on Peleng / Taliabu and by subspecies on neighbouring islands. Note the great variability in duration and element spacing in the disyllabic call (A–G), even within members of the same subspecies (e.g. B–D). A: Talaud Islands (*P. e. inspeculata*), by F. Verbelen, in March 1997. B: Tangkoko National Park (North Sulawesi; *P. e. celebensis*), by B. Demeulemeester (date unknown). C: Tambun (North Sulawesi; *P. e. celebensis*), by B. Demeulemeester (date unknown). D: Batudaka (Togian Islands; *P. e. celebensis*), by F. Verbelen, in December 2008. E–F: Peleng Island (*P. e. dohertyi*), by F. Verbelen, in March 2009. G: Taliabu (Sula Islands; *P. e. dohertyi*), by F. Verbelen, in March 1997. H: Talaud Islands (*P. e. inspeculata*), by F. Verbelen, in March 1997. I: Peleng Island (*P. e. dohertyi*), by F. Verbelen, in March 2009.

1997, Indrawan *et al.* 1997, Erritzoe 2003). The only previous information on the elevational range of this taxon is from Taliabu, where it has been reported as occurring from sea level to 600 m (Rheindt 2010).

P. e. dohertyi has undergone a chequered taxonomic history. Most pre-1990 authorities, as well as Coates & Bishop (1997) and Erritzoe (2003), considered it a subspecies of *P. erythrogaster*. However, Sibley & Monroe (1990), Davidson *et al.* (1991) and Lambert & Woodcock (1996) considered *dohertyi* a separate species based on its head coloration, other minor plumage details, and its allegedly distinctive vocalisation, which the latter authors described as dissimilar to other taxa in the *P. erythrogaster* complex. Erritzoe (2003) dismissed the plumage differences as insufficient for species status because plumage variation in other subspecies of *P. erythrogaster* is also considerable. It appears that Lambert & Woodcock's (1996) description of its 'distinctive call' was apparently based on a poorly known secondary vocalisation also given by all neighbouring subspecies (see their sonogram and Fig. 5H–I). *P. e. dohertyi* on Peleng (Fig. 5E–F) and Taliabu (Fig. 5G) also give the same main disyllabic call as *P. erythrogaster* elsewhere in its range (Fig. 5A–D). Slight differences in duration and note spacing are apparent between *P. e. dohertyi* and other subspecies, but these are no more pronounced than between (and even within) other subspecies of *P. erythrogaster* (Fig. 5). In fact, vocal variation can be quite pronounced even individually, depending on the bird's level of agitation (FER & FV pers. obs.; R. O. Hutchinson *in litt.* 2009). For this reason, we reject any split of *P. e. dohertyi*. A thorough genetic analysis is needed before considering the division of *P. erythrogaster* into more than one species.

SLATY CUCKOOSHRIKE *Coracina schistacea*

Five observations of family groups of 3–4 birds in secondary and primary forest in montane western Peleng at c.750 m to over 900 m (FV, FER; 23 March–4 April 2009), where the species was photographed and sound-recorded (FV). On 7 October 2004, MI observed a pair at c.450 m near Alani and—on subsequent days—he occasionally saw individuals in the south-east of western Peleng at c.900 m. Considered primarily a lowland species, *C. schistacea* is endemic to the Banggai and Sula islands (White & Bruce 1986, Coates & Bishop 1997) and had previously been recorded to just 200 m on the Banggai Islands (Indrawan *et al.* 1997).

COMMON CICADABIRD *Coracina tenuirostris pelingi*

A female was seen at the summit of Kramat Mountain (in the south-east of western Peleng), and a pair was subsequently observed slightly lower at c.700 m (MI; 4 May 2007). One to seven individuals were seen on approximately six occasions in degraded to tall forest in montane western Peleng at c.650–850 m (FER, FV; 22–31 March 2009), where the species was photographed (Fig. 6) and sound-recorded. It was also seen in eastern Peleng near sea level on 5–8 April 2009 (FV) and 20–21 April 2009 (FER). On the Banggai Islands, the species is represented by endemic *C. t. pelingi*, for which no elevational data have been published (Coates & Bishop 1997). *C. t. pelingi* and the equally isolated *C. t. obiensis* from Obi Island are characterised by an extremely divergent female plumage that bears little resemblance to female plumages of other members of the complex (Fig. 6; Coates & Bishop 1997). Future work may confirm that the distinctiveness of *C. t. pelingi* is supported by genetic, acoustic or other morphological data, which might lead it to be considered specifically. Current taxonomy divides the species into c.30 races, and a complete taxonomic review is surely needed.

SULAWESI TRILLER *Lalage leucopygialis*

A male was seen atop a bare tree in cultivation near the forest edge, at c.550 m, near Kokolomboi in western Peleng (MI; 6 October 2006). A silent male was photographed in a mixed-species canopy flock in secondary forest at c.750 m in western Peleng (FER, FV; 24 March 2008). Previously recorded from Peleng, but its elevational range there was unknown (White & Bruce 1986, Coates & Bishop 1997). On Sulawesi, it ranges to 1,000 m, whilst on Taliabu (Sula Islands) it has not been seen higher than c.200 m (Davidson *et al.* 1991, Stones *et al.* 1997, Coates & Bishop 1997; FER pers. obs.).

HAIR-CRESTED DRONGO *Dicrurus hottentottus banggaiensis*

Common in degraded woodland to tall forest from sea level to at least 750 m in montane western Peleng (FV, FER; 22–31 March 2009) and in the lowlands of eastern Peleng (FV, 5–8 April 2009; FER, 20–21 April 2009). It was photographed (Fig. 7) and sound-recorded (FV). During his visits to Peleng, MI has recorded the species on a near-daily basis, mostly in the lowlands but also in the montane west. The regional classification of the Hair-crested Drongo is complicated, and current taxonomy may not do the evolutionary history of this complex justice (see Rheindt & Hutchinson 2007). Following older treatments, White & Bruce (1986) and Coates & Bishop (1997) attributed populations on the Banggai Islands to the Sulawesi subspecies *D. h. leucops*, which is distinct from most other races in having a strikingly white iris. White & Bruce (1986) explicitly mentioned that Banggai birds had previously been accorded subspecific status as *D. h. banggaiensis* due to their 'having a brown rather than white iris, but there is doubt as to the validity of this'. However, Indrawan *et al.* (1997) remarked that—although most birds they saw in the lowlands of the Banggai archipelago were white-eyed—several with brown irises were observed as well. This situation is akin to that on other satellite islands of Sulawesi, where *D. h. leucops* is supposedly present but dark-eyed birds occur, e.g. on Siau (FV & FER pers. obs.). Indrawan *et al.* (1997) suggested that brown-eyed birds in the Banggai Islands may belong to the previously unrecorded Spangled Drongo *D. bracteatus*. However, as there seems to be no cogent rationale for the taxonomic treatment that divides drongo populations in Wallacea into *D. bracteatus* in the east and *D. hottentottus* in the west (Rheindt & Hutchinson 2007), we suggest that the classification of brown-eyed birds in Banggai as *D. bracteatus* is unhelpful.

Curiously, the great majority we saw in western Peleng above 400 m had grey to brown irides (Fig. 7), unlike the predominantly white-eyed birds observed in the lowlands by Indrawan *et al.* (1997). However, we also saw one or two individuals with very pale eyes, described as off-white. We observed birds with different eye colours together and giving identical vocalisations. Therefore, we doubt that the situation on Peleng mirrors that on Sulawesi, where a pale-eyed drongo species from the lowlands (*D. h. leucops*) and a dark-eyed montane species (Sulawesi Drongo *D. montanus*) replace each other. Instead, we assume there is one drongo species on Peleng that displays a range of eye colours, with dark irides predominating at higher elevations. Eye colour did not appear to be related to age, since vocally displaying adults with different eye colours were seen.

One explanation for the variability of eye colours on Peleng could be varying selectional pressures along an elevational gradient, with pale eyes being selected over dark eyes at lower elevations and vice versa. A second scenario for the variability of eye colours on Peleng could be the ongoing gradual introgression of a newly colonising taxon, presumably white-eyed *D. h. leucops* of Sulawesi, into the ancestral Peleng drongo *D. h. banggaiensis*, which is perhaps closely related to brown-eyed *D. h. pectoralis* of Sula. Although only 14 km distant, Peleng and Sulawesi are divided by a deep-sea trench (Becker *et al.* 2009) that has never permitted land connections to form during glacial sea-level fluctuations that recur every

c.100,000 years (Lambeck & Chappell 2001, Siddall *et al.* 2003, Bintanja *et al.* 2005, Thompson & Goldstein 2005, Caputo 2007). On the other hand, sea levels between Sula and Banggai / Peleng are sufficiently shallow for landbridges to arise during glacial periods (Becker *et al.* 2009). This potential scenario entails that dark-eyed populations of *D. h. banggaiensis* could be facing slow and gradual introgression on Peleng by colonising *D. h. leucops* from Sulawesi. The predominance of white-eyed birds in the lowlands of Peleng would also agree with this scenario, since colonisers would probably become established in the lowlands first. This taxonomic puzzle demands genetic elucidation. Meanwhile, we suggest that the previous treatment of drongos on the Banggai Islands as *D. h. banggaiensis* should be maintained until and unless further data prove this arrangement to be erroneous.

NORTHERN GOLDEN BULBUL *Thapsinillas longirostris harterti*

Occupies a wide spectrum of habitats, from undisturbed primary forest to degraded scrub and from sea level to over 900 m in montane western Peleng (FER, FV; 22–31 March 2009). Also seen in degraded lowland forest near sea level in eastern Peleng on 5–8 April (FV) and 20–21 April 2009 (FER). It was photographed and sound-recorded. Furthermore, MI, DDP & AR observed the species in a similar range of habitats and elevations on a near-daily basis during their multiple visits. Elevational data on *T.1. harterti*, which is endemic to the Banggai Islands, have been lacking. Our records reveal that it occurs across the entire elevational spectrum on Peleng. We follow Fishpool & Tobias (2005) and Rheindt & Hutchinson (2007) in considering taxa from the northern Moluccas, Banggai, Sangihe and Togian islands as a species, *T. longirostris*, separate from taxa in the southern Moluccas, but future research will probably reveal the existence of several species-level taxa with different plumage and vocalisations within *T. longirostris*—akin to the species-level differences shown between taxa that comprise Southern Golden Bulbul *T. affinis* (Rheindt & Hutchinson 2007).

BLACK-NAPED ORIOLE *Oriolus chinensis frontalis*

Photographed and sound-recorded regularly in forest and woodland from sea level to c.850 m on western Peleng (FV, FER; 22–31 March 2009). Encountered regularly in degraded lowland forest in eastern Peleng on 5–8 April (FV) and 20–21 April 2009 (FER). The population on the Banggai Islands is included within *O. c. frontalis* along with those on the Sula archipelago (White & Bruce 1986, Coates & Bishop 1997). Whilst the widespread Sulawesi *O. c. celebensis* ranges into the mountains, *O. c. frontalis* had been reported from sea level only to c.300 m on Taliabu (Davidson *et al.* 1991, Coates & Bishop 1997, Stones *et al.* 1997). Our montane records on Peleng—along with recent observations from Taliabu to 800 m (Rheindt 2010)—establish that *O. c. frontalis* resembles other regional subspecies in its elevational range.

BANGGAI CROW *Corvus unicolor*

Recorded repeatedly by all authors. Details on the rediscovery of this species are published elsewhere in this issue (Indrawan *et al.* 2010, Mallo *et al.* 2010).

SLENDER-BILLED CROW *Corvus enca*

Common in coconut plantations and other agricultural land from sea level to c.300 m in western Peleng (FV & FER, 22 and 31 March 2009; MI, numerous records, including 18 January–9 February 2008 and one at c.400 m at Alani on 7 October 2004). During a visit to montane western Peleng, one was seen above 900 m, flying overhead at a height of c.50 m, in undisturbed primary forest (FER, FV; 27 March 2009). The latter sighting clearly involved *C. enca* and was made within minutes of seeing several *C. unicolor*, which species is expected at

higher elevations in undisturbed forest. This *C. enca* was presumably crossing the area without intending to land. Subsequently, *C. enca* was seen in degraded scrub near sea level in eastern Peleng on 5–8 April 2009 (FV) and 20–21 April 2009 (FER), where it was sound-recorded (Fig. 8) and photographed (Fig. 9).

White & Bruce (1986) and Coates & Bishop (1997) did not list *C. enca* for the Banggai Islands, although Coates & Bishop (1997) noted that crows seen near habitation on Banggai and Peleng might pertain to this species. Indrawan *et al.* (1997) also reported the presence of a *Corvus* in the lowlands of the Banggai Islands that presumably referred to this species, but they too left the identity open. However, *C. enca* was identified on Peleng and Banggai in 2005 during searches for *C. unicolor* (B. King *in litt.* 2006, <http://www.kingbirdtours.com/news.html>). *C. enca* appears to be a common resident of disturbed lowland habitat on the Banggai archipelago. It is unknown whether this population belongs to the Sulawesi subspecies *C. e. celebensis* or to Sula *C. e. mangoli*. Future bio-acoustic and morphological studies should seek to establish the taxonomic affinities of the Banggai population.

On Peleng, *C. enca* seems to replace endemic *C. unicolor* in disturbed lowland habitat. The lack of historic records of *C. enca* on Peleng and Banggai may indicate recent colonisation following anthropogenic habitat modification. However, this hypothesis requires further research given that older villagers in western Peleng claim that ‘the big lowland crow’ was also present during their childhood, when undisturbed forest dominated low elevations on Peleng.

RED-AND-BLACK THRUSH *Zoothera mendeni*

A single—caught by local people who consider this bird uncommon—was given to MI on c.16 June 2008 at a locality in western Peleng between 150 m and 500 m. Prior to this, Y. Masala, a member of MI’s party, observed one near Bobonggon on 4 May 2007. During their nine-day visit to montane western Peleng, FER & FV observed this bird only three times, on 22–26 March 2009 at c.450–650 m in secondary forest. FV sound-recorded the call note. Their sightings were made in small forest patches at the upper edge of the agricultural belt, presumably in the only suitable habitat locally remaining within the species’ elevational range, which may not reach much higher. In the degraded lowlands near Salakan in eastern Peleng on 21 April 2009, FER sound-recorded (Fig. 10) and photographed (Fig. 11) one in a small patch of moderately undisturbed secondary forest at c.100 m.

We follow Collar’s (2004) proposal to regard *Z. mendeni* as specifically distinct from the very different-looking Red-backed Thrush *Z. erythronota* of Sulawesi. We also employ Collar’s (2004) name, Red-and-black Thrush, rather than the more widespread English name Peleng Thrush. Although the species has to date only been recorded on Peleng within the Banggai archipelago, the latter name is unsuitable, because Davidson *et al.* (1991) discovered a new *Zoothera* population on Taliabu (Sula Islands) which on present evidence is doubtfully distinct from *Z. mendeni* (Collar 2004).

Nothing has been published concerning the elevational range of *Z. mendeni* on Peleng, except that the type specimen was taken at 300 m (Clement & Hathway 2000).

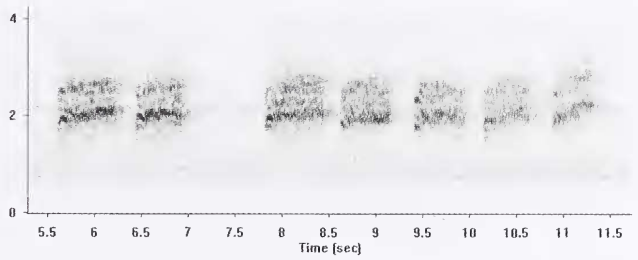


Figure 8. Sonogram of the calls of Slender-billed Crow *Corvus enca* recorded at sea level on Peleng. X-axis = time (0.5 seconds per tick), y-axis = frequency (2 kHz per tick). Recording by F. E. Rheindt.

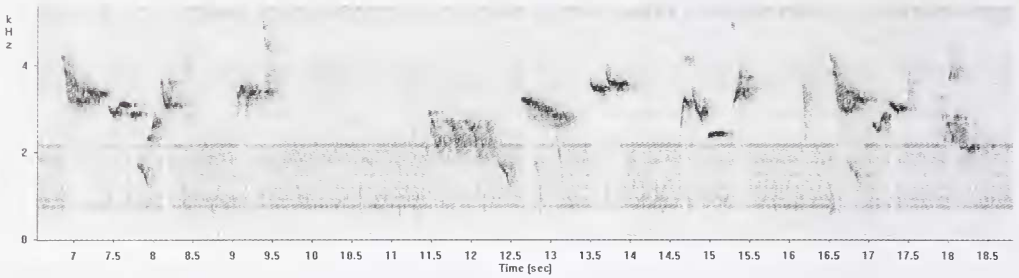


Figure 10. Sonogram of the song of Red-and-black Thrush *Zoothera mendeni* recorded at 100 m on Peleng. The song is a strong, pleasing, melodious warble. X-axis = time (0.5 seconds per tick), y-axis = frequency (2 kHz per tick). Recording by F. E. Rheindt.

The vocalisation of *Z. mendeni* is undescribed. Our records establish that the species may principally be restricted to lowland forest below 650 m, and might therefore be at risk due to the wholesale clearance of lowland forest on Peleng. The song (Fig. 10) is a very strong, melodious, pleasing and liquid series of notes typical of *Zoothera* dawn songs. It is similar to descriptions of the song of *Z. erythronota*, which has apparently not been sound-recorded (Clement & Hathway 2000). The call was a very high-pitched, typical *Zoothera*-like *pseeeeeeeee*.

SNOWY-BROWED FLYCATCHER *Ficedula hyperythra* (undescribed subspecies?)

Seen by DDP in montane western Peleng at 800–900 m: on 10 April 2009, one was found damaged in a mist-net, presumably having been preyed by a mouse; it had briefly been seen in the field at the same location on 9 April. This is the first record for the Banggai archipelago. The species is common in montane Sulawesi to the north and west (White & Bruce 1986, Coates & Bishop 1997) and has been recorded on Taliabu in the Sula archipelago to the east (Davidson *et al.* 1991, Stones *et al.* 1997, Rheindt 2010). The subspecific identity of birds on Peleng is uncertain: those on Taliabu are believed to involve an undescribed subspecies (Davidson *et al.* 1991), which might mean that the Peleng population also deserves subspecific rank, unless subsumed with those on Taliabu or the adjacent taxon on Sulawesi.

GRAY'S GRASSHOPPER WARBLER *Locustella fasciolata*

On 23, 26 and 28 March 2009, a single was repeatedly heard giving its distinctive alarm call (Fig. 12) from a large weedy forest clearing at c.800 m (FV, FER). The same individual was probably involved on all three occasions. Twice (23 and 26 March), the bird was briefly seen. These are the first records of *L. fasciolata* on the Banggai Islands (White & Bruce 1986, Coates & Bishop 1997). Our sightings were brief but clearly involved a comparatively large

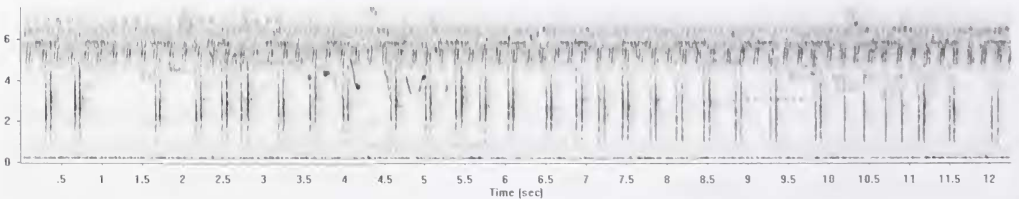


Figure 12. Sonogram of the distinctive alarm vocalisation of Gray's Grasshopper Warbler *Locustella fasciolata* recorded at 800 m on Peleng. The recording constitutes a rapid series of call doublets (*terreck-terreck, terreck terreck-terreck* . . .). Dark smudging at 0.6 kHz is background noise of insects. X-axis = time (0.5 seconds per tick), y-axis = frequency (2 kHz per tick). Recording by F. Verbelen.

warbler with a bright white supercilium and solid brown (unstreaked) back. These details and the sound-recordings confirm its identification as *L. fasciolata* and preclude confusion with various *Megalurus* grassbirds, *Acrocephalus* reed warblers or *Bradypterus* bush warblers. A widespread winter visitor and passage migrant to northern Wallacea (Coates & Bishop 1997), its occurrence on the Banggai Islands is unsurprising; the lack of previous records is probably reflective of low observer activity and the species' shy behaviour.

MOUNTAIN TAILORBIRD *Orthotomus cucullatus* (undescribed subspecies?)

The species' distinctive song was heard commonly, and singles were seen occasionally, in primary and secondary forest in montane western Peleng between 750 m and over 900 m (FER, FV; 22–31 March 2009). These are the first records for the Banggai Islands (White & Bruce 1986, Coates & Bishop 1997). Identification of this vocally conspicuous species was confirmed by sound-recordings (Fig. 13). The taxonomic affinities of the Peleng population are undetermined. On Sulawesi, Mountain Tailorbird is represented by four very similar subspecies, one of which (*O. c. meisei*) occurs in mountains on the eastern peninsula adjacent to Peleng. However, a population has also recently been discovered in the mountains of Taliabu, which is thought to represent an endemic subspecies (Davidson *et al.* 1991, Coates & Bishop 1997). A revision of all subspecies in the region, including the two undescribed populations, will be required to determine the validity of taxa and the affinities of birds on Peleng and Taliabu.

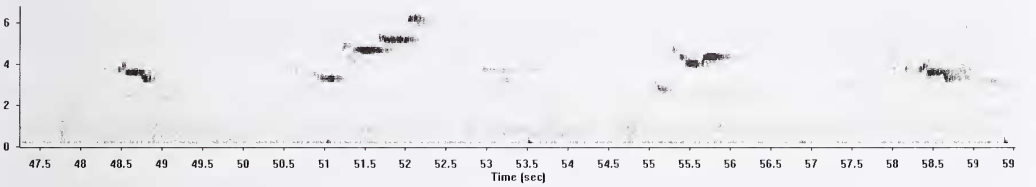


Figure 13. Sonogram of the song of Mountain Tailorbird *Orthotomus cucullatus* recorded c.850 m on Peleng. The song is a single, melodious, high-pitched (near-) level note or a rapid succession of 2–4 such notes on different frequencies. X-axis = time (0.5 seconds per tick), y-axis = frequency (2 kHz per tick). Recording by F. Verbelen.

ARCTIC WARBLER *Phylloscopus borealis*

Loose associations involving several individuals of this Palearctic migrant were observed and photographed on 5–6 occasions in disturbed woodland to primary forest at 600–850 m on western Peleng (FV, FER; 24 March–3 April 2009). They often associated with mixed flocks that also contained flowerpeckers (*Dicaeum*), honeyeaters (*Myzomela*) and an

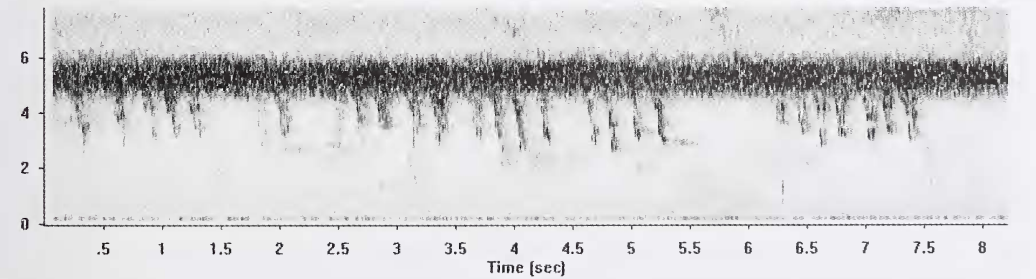


Figure 14. Sonogram of the song of Arctic Warbler *Phylloscopus borealis* recorded at c.750 m on Peleng. This vocalisation is a trill given principally during courtship on the breeding grounds. The black smudging at 5–6 kHz is sound pollution by insects. X-axis = time (0.5 seconds per tick), y-axis = frequency (2 kHz per tick). Recording by F. Verbelen.

undescribed leaf warbler (see following account). Identification was based on the white underparts, presence of one white wingbar and—primarily—song. The trill typically given on the Siberian breeding grounds during courtship was sound-recorded, confirming the identification (Fig. 14). Arctic Warbler is a widespread winter visitor to Wallacea, but has not previously been recorded in the Banggai Islands. Its occurrence here is unsurprising.

'PELENG LEAF WARBLER' *Phylloscopus* taxon novum

On 23–30 March 2009, FER & FV repeatedly observed groups, pairs and singles of a leaf warbler other than Arctic Warbler *P. borealis* or any other migratory species known in Indonesia. They were observed frequently in primary and secondary forest from 700 m to over 900 m, being slightly commoner at higher elevations, and one was photographed (Fig. 15). It often associated with other canopy species, such as honeyeaters (*Myzomela*), flowerpeckers (*Dicaeum*) and even *P. borealis*. When these two *Phylloscopus* were seen together, the present species was easily separated by its smaller size and distinct underparts coloration, with the yellowish lower breast and belly contrasting with the off-white throat and upper breast. It also behaved differently from the twig-feeding *P. borealis* by keeping to heavier branches, along which it crept like a tree creeper (*Certhia*). We acquired numerous sound-recordings which confirm that it does not belong to any potential migrant visitor.

The genus *Phylloscopus* has not previously been reported from the Banggai Islands (White & Bruce 1986, Coates & Bishop 1997). However, the mountains of adjacent Sulawesi are inhabited by Sulawesi Leaf Warbler *P. sarasinorum* (White & Bruce 1986, Coates & Bishop 1997), whilst there is a recently discovered but undescribed leaf warbler in montane Taliabu that perhaps belong to the Island Leaf Warbler *P. poliocephalus* complex (Davidson *et al.* 1991, Coates & Bishop 1997, Stones *et al.* 1997, Rheindt 2010). Preliminary comparison of photographs and sound-recordings suggests pronounced differences in underparts coloration and vocalisations between the 'Peleng Leaf Warbler', the undescribed Taliabu taxon and *P. sarasinorum*. The taxonomic affinity of the Peleng population requires acoustic, morphological and preferably genetic studies, incorporating all neighbouring taxa of the *P. sarasinorum* / *poliocephalus* complex, which might comprise up to a dozen species-level taxa (Rheindt & Hutchinson 2007); the undescribed forms on Taliabu and Peleng perhaps form part of this grouping. Detailed taxonomic research into the *P. poliocephalus* complex has been initiated with a view to resolving the position of some Indo-Papuan leaf warbler taxa (FER unpubl. data).

BLACK-FRONTED WHITE-EYE *Zosterops atrifrons subatrifrons*

Common in a variety of habitats ranging from degraded patches to primary forest, from sea level to above 900 m in western Peleng (FER, FV; 22–31 March 2009). Also encountered near-daily during multiple visits to the same area by MI & DDP. Subsequently, the species was found to be common near sea level in the east of the island on 5–8 April 2009 (FV) and 20–21 April 2009 (FER). FV obtained sound-recordings (Fig. 16), and he and DDP photographed the species on Peleng. The population on Peleng is ascribed to *Z. a. subatrifrons* (Rasmussen *et al.* 2000), for which few elevational data have been published. On Sulawesi, *Z. a. atrifrons* and *Z. a. sordus* range from sea level to 1,500 m (White & Bruce 1986, Coates & Bishop 1997), whilst *Z. a. sulaensis* on the Sula archipelago was thought to be restricted to the lowlands (Davidson *et al.* 1991, Coates & Bishop 1997, Stones *et al.* 1997) but has recently been found commonly to 1,100 m on Taliabu (Rheindt 2010). Our Peleng observations demonstrate that the elevational range of *Z. a. subatrifrons* is comparable to neighbouring taxa.

The taxonomy of *Z. atrifrons* has recently been revised (Rasmussen *et al.* 2000). Previously, most authors (e.g. White & Bruce 1986, Coates & Bishop 1997) had included Sangihe White-

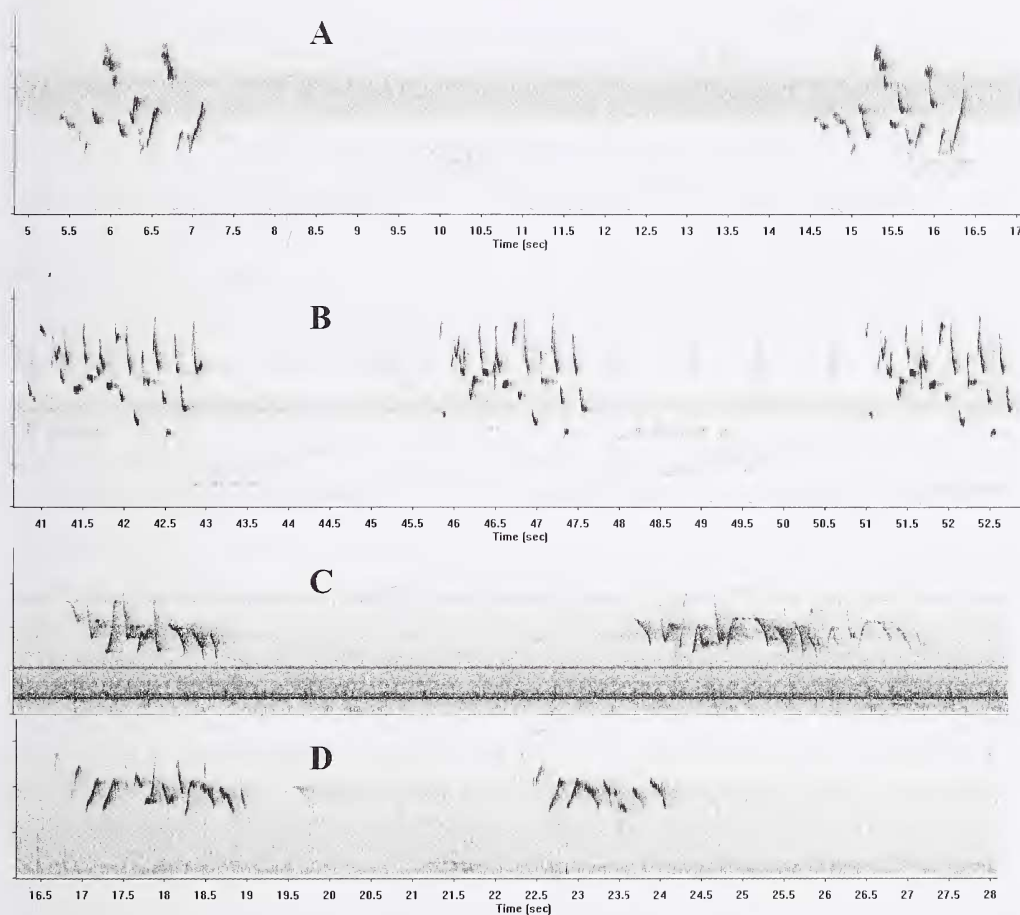


Figure 16. Sonograms of the dawn song of Black-fronted White-eye *Zosterops atrifrons* from (A) Peleng Island (*Z. a. subatrifrons*; F. Verbelen), (B) Gunung Ambang, North Sulawesi (*Z. a. atrifrons*; F. Verbelen), (C) and (D) Taliabu Island, Sula archipelago (*Z. a. sulaensis*; (C) F. E. Rheindt and (D) by P. Davidson & A. J. Stones). All sonograms are at equal scale. X-axis = time (0.5 seconds per tick), y-axis = frequency (2 kHz per tick). Dawn songs are principally but not exclusively uttered at dawn. Note the dramatic differences in song structure, frequency and number and shape of elements in the three taxa. The black smudging at c.1 kHz in (C) is mechanical sound pollution. Note that C and D were recorded at different sites on Taliabu at a 12-year interval.

eye *Z. nehrkorni* and Seram White-eye *Z. stalkerii* in *Z. atrifrons*, until Rasmussen *et al.* (2000) demonstrated that these forms merit biological species status on account of pronounced morphological and / or acoustic differences. Concerning *Z. a. sulaensis* and *Z. a. subatrifrons*, Rasmussen *et al.* (2000) noted close similarities in coloration, but conspicuous differences in eye-ring width and other colour details between the *Z. a. sulaensis* / *subatrifrons* group on the one hand and the two mainland Sulawesi taxa (*Z. a. atrifrons* / *surdus*) on the other. They pointed out that *Z. a. subatrifrons* from Peleng appears somewhat intermediate between Sulawesi and Sula populations in these characters (see also Indrawan *et al.* 2008), but that its much closer affinities with *Z. a. sulaensis* are undeniable. Rasmussen *et al.*'s (2000) acoustic material, which included samples of the dawn song of *Z. a. atrifrons* (North Sulawesi), *Z. a. surdus* (Central Sulawesi) and *Z. a. sulaensis* (Sula), but unfortunately not *Z. a. subatrifrons* (Peleng), suggested vocal similarities between the two Sulawesi taxa, which in turn differed greatly from *Z. a. sulaensis* in song structure and frequency. These authors asserted that if

Z. a. subatrifrons from Peleng did not exhibit a slight approximation in plumage characters towards the Sulawesi forms, 'the distinctiveness of *sulaensis* [and *subatrifrons*] both in morphology and in vocalizations as compared to the nominate is such that we would have unhesitatingly recommended specific status'. However, they were reluctant to propose a split, because 'if *sulaensis* were treated as specifically distinct, on morphology, *subatrifrons* must belong to the same species, and it is the name with priority. As we have no information on the vocalizations of *subatrifrons*, we are therefore presently unable to resolve this matter' (Rasmussen *et al.* 2000).

FV obtained numerous recordings of the dawn song of *Z. a. subatrifrons*, all of which possess an equal sound structure and frequency profile on sonograms (Fig. 16), confirming their taxonomic utility. Although Rasmussen *et al.* (2000) pointed to the vocalisations of *Z. a. subatrifrons* as the key to solving the unresolved puzzle surrounding the taxonomic rank of Sula and Banggai populations, our Peleng recordings provide no easy solution, as they do not clearly align with either their eastern (*Z. a. sulaensis*) or western / northern neighbours (*Z. a. surdus* / *atrifrons*). Note that our samples of *Z. a. atrifrons* and *Z. a. sulaensis* are virtually identical to sonograms in Rasmussen *et al.* (2000), although their recordings were not made at the same sites, thereby confirming dawn song as a reliable taxonomic character (Fig. 16). *Z. a. subatrifrons* from Peleng exhibits a song structure less complex than in *Z. a. atrifrons*, with only slightly more than 50% of the elements per song bout, and a mean frequency range that is lower pitched by c.1 kHz (4–9 kHz vs. 3–8 kHz). Even so, the shape of individual song elements in both taxa is similar, with a preponderance of descending hook-shaped notes at higher frequencies interspersed within a series of rising or punctual notes at lower frequencies (Fig. 16). Compared to *Z. a. sulaensis*, which displays an impoverished frequency range of 3–5 kHz, the song of *Z. a. subatrifrons* has pronounced differences in the shapes of individual elements, with ascending notes dominating over descending ones, although the number of elements per bout is roughly comparable between them (Fig. 16).

Therefore, the song of *Z. a. subatrifrons* proves to be equally distinct from *Z. a. atrifrons* as it is from *Z. a. sulaensis*, and thus bears no information pointing to its closest phylogenetic affinities. On the contrary, our recordings from Peleng suggest that *Z. a. subatrifrons* may deserve biological species rank, with *Z. a. sulaensis* also upgraded to species level. However, given the plumage similarities of the latter two (Rasmussen *et al.* 2000), we await further data, especially additional vocal samples from other parts of central (southern) Sulawesi, where an undescribed subspecies of *Z. atrifrons* has been reported (Rasmussen *et al.* 2000), before proposing such an arrangement.

HENNA-TAILED JUNGLE FLYCATCHER *Rhinomyias colonus pelingensis*

On 3 October 2006, scattered secondaries, tertials and filoplumes of this species (probably predated) were found in old secondary forest near its edge, at Bobonggon at c.520 m (MI). A nearby cup-shaped nest on a young pandan plant c.30 cm above the ground was believed to belong to this species. It contained two brown chicks c.6–8 cm long with black-streaked upperparts (MI). Subsequently, a second nest—of mosses, placed in a pandan and apparently recently abandoned—was found in primary forest at Kramat at c.800 m (MI). On 5 May 2007, an adult was mist-netted, measured, photographed and released at Lado (MI). During their trip to montane western Peleng (22–31 March 2009), FV & FER heard the species commonly, and observed it occasionally in primary forest and degraded woodland from sea level to c.850 m. In the lowlands of eastern Peleng on 5–8 April (FV) and 20–21 April 2009 (FER), it was heard and seen several times in degraded secondary forest. The species was photographed and sound-recorded (FV). *R. colonus* is probably endemic to

the Sula and Banggai islands, although a specimen of doubtful provenance may be from eastern Sulawesi (White & Bruce 1986, Coates & Bishop 1997). On the Banggai Islands, it is represented by the endemic *R. c. pelingensis*, which has hitherto been recorded only on Peleng (Coates & Bishop 1997) and Labobo (Indrawan *et al.* 1997). It is generally unobtrusive (Davidson *et al.* 1991), and rare on Peleng, where Indrawan *et al.* (1993, 1997, 1998) did not find it during several weeks of field work (1993, 1998) in the low-lying east of the island. Its previous upper elevational limit had been reported as 300 m on Taliabu (Davidson *et al.* 1991, Stones *et al.* 1997; FER pers. obs.). Our records from Peleng reveal that *R. c. pelingensis* may differ from the nominate subspecies in its much broader elevational range. Our records also demonstrate that, once its pleasing melodious song is learned, this shy and inconspicuous species proves much commoner than previously assumed, and may possess a broad tolerance of habitat degradation.

BLACK-NAPED MONARCH *Hypothymis azurea blasii*

Common in primary forest to degraded second growth in western Peleng from sea level to over 900 m (FER, FV; 22–31 March 2009). MI, DDP & AR also recorded the species in a wide range of habitats and elevations throughout western Peleng on numerous occasions. In the lowlands of eastern Peleng (FV, 5–9 April; FER, 20–21 April 2009), it was common, and was photographed and sound-recorded. The population on Peleng is ascribed to *H. a. blasii* from the Banggai and Sula archipelagos (White & Bruce 1986, Coates & Bishop 1997, Indrawan *et al.* 1997). The elevational range of this subspecies had been reported as sea level to 300 m on Taliabu (Davidson *et al.* 1991, Coates & Bishop 1997, Stones *et al.* 1997), although it has since been observed up to 900 m (Rheindt 2010). Our records from Peleng reveal the altitudinal range of *H. a. blasii* to be much more akin to that of other subspecies than previously assumed.

CITRINE CANARY-FLYCATCHER *Culicicapa helianthea helianthea*

Common from c.750 m to over 900 m in secondary and primary montane forest in western Peleng (FV, FER; 22–31 March 2009). It was not observed in the lowlands. *C. h. helianthea* is known from Peleng, but data on its elevational range were lacking (White & Bruce 1986, Coates & Bishop 1997). On Sulawesi, it occurs to 2,300 m, although it is rather commoner above 500 m (Coates & Bishop 1997). Its primarily montane range on Sulawesi may be mirrored on Peleng. On Taliabu and Mangole, it was previously known only from the lowlands (Davidson *et al.* 1991, Stones *et al.* 1997, Coates & Bishop 1997), but it has recently been found on Taliabu to c.800 m (Rheindt 2010).

RUSTY-BELLIED FANTAIL *Rhipidura teysmanni* (undescribed subspecies?)

Seen occasionally and heard more frequently in secondary to primary montane forest in western montane Peleng at c.750–900 m (FER, FV; 23–30 March 2009). FV obtained sound-recordings (Fig. 17) and photographs. In the same area, DDP, AR & MI occasionally observed the species during several visits. These are the first records for the Banggai archipelago. The species is widespread in the Sulawesi highlands, where up to three subspecies are recognised: nominate *teysmanni* on the Lompobattang Massif in south Sulawesi, *toradja* in the mountains of central and south-east Sulawesi and *coomansi* on the northern Minahasa Peninsula. Furthermore, another subspecies, *sulaensis*, inhabits montane Taliabu. The population on Peleng closes a distributional gap between Sulawesi and the Sula archipelago.

The taxonomic affinity of the population on Peleng is contentious. In the field, all subspecies look extremely similar (Coates & Bishop 1997; FER pers. obs.), and the Peleng

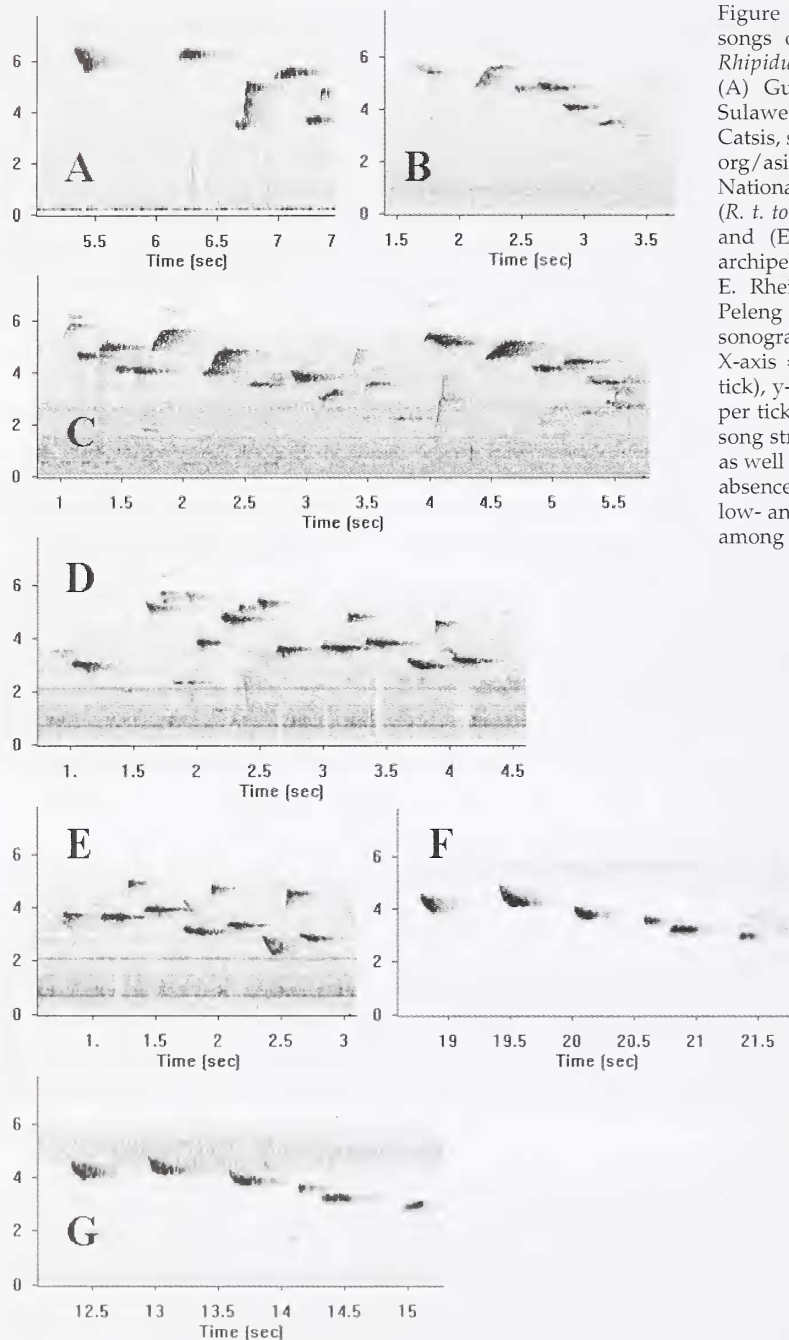


Figure 17. Sonograms of the songs of Rusty-bellied Fantail *Rhipidura teysmanni* from (A) Gunung Ambang, North Sulawesi (*R. t. coomansi*; M. Catsis, source www.xeno-canto.org/asia); (B) and (C) Lore Lindu National Park, Central Sulawesi (*R. t. toradja*; F. E. Rheindt); (D) and (E) Taliabu Island, Sula archipelago (*R. t. sulaensis*; F. E. Rheindt); and (F) and (G) Peleng Island (F. Verbelen). All sonograms are at equal scale. X-axis = time (0.5 seconds per tick), y-axis = frequency (2 kHz per tick). Note the difference in song structure, frequency range as well as presence (e.g. D, E) or absence (e.g. F, G) of alternating low- and high-pitched elements among the taxa.

population is no exception. At any given site, *R. teysmanni* has a large structural repertoire in songs, although most motifs clearly belong to the same general theme. Individual and agitation-specific variability necessitates a thorough acoustic analysis to assign Peleng birds subspecifically. However, a comparison of the major vocal features characteristic of some of the taxa provides some clues. Songs from northern and central Sulawesi consist of tinkling notes at c.3–7 kHz which can rapidly alternate between high- and low-pitched elements (Fig. 17A, C), although descending strophes are less common (Fig. 17B). In *sulaensis* from

Taliabu (Fig. 17D–E), the overall frequency is considerably lower than on Sulawesi (only c.2–5 kHz). At the same time, higher pitched notes in the song of *sulaensis* are less intense than on Sulawesi and only sporadically intersperse the stronger succession of lower pitched notes. The latter frequently end on a descending theme (Fig. 17D–E). This often-rigid sequence gives the song of *sulaensis* a lower pitched, more repetitive and less variable impression than that of *toradja* and *coomansi* from Sulawesi.

Compared to the Sulawesi and Sula taxa, the population on Peleng is vocally distinct. Throughout our time on Peleng, we have only noted a single constant song type comprising 4–7 descending notes falling from c.3–5 kHz (Fig. 17F–G). This song type lacks the interspersed higher pitched notes common in *sulaensis* (Fig. 17D–E) and also differs from the descending songs on mainland Sulawesi (Fig. 17B) by virtue of the much narrower frequency range and slower delivery. On account of its characteristic vocalisations, we suggest the Peleng population of *R. teysmanni* merits recognition at subspecies level. However, its description must await further analyses and the collection of specimens.

GOLDEN WHISTLER *Pachycephala pectoralis pelengensis*

One was mist-netted, measured and photographed near Lado at c.650 m (5 May 2007; MI). More recently, DDP trapped the species on several occasions in montane western Peleng. During their visit to the same area on 22–31 March 2009, FV & FER observed it commonly in degraded scrub to primary forest, from sea level to over 900 m. The species was also observed near sea level in lowland secondary forest and scrub on several occasions during the following weeks. The population on Banggai and Peleng is thought to represent an endemic subspecies *P. p. pelengensis* (White & Bruce 1986, Coates & Bishop 1997). Elevational data for this endemic subspecies have not been published to date. Our records reveal that *P. p. pelengensis* has a wide elevational range similar to that of neighbouring subspecies (Coates & Bishop 1997).

DRAB WHISTLER *Pachycephala griseonota*

Singles or pairs were seen on four occasions (24, 26 and twice on 28 March 2009) between 750 m and over 900 m in primary and old secondary forest in western Peleng (FER, FV). On 7 April 2009, FV photographed the species in a mixed-species flock in secondary forest in eastern Peleng near Salakan at c.100 m (Fig. 18). Ours are the first records in the Banggai archipelago. Identification of this drab and inconspicuous species was based on the birds' dark facial coloration contrasting noticeably with the pale throat (Fig. 18).

P. griseonota is considered endemic to the Moluccas (including Sula). It is represented by different subspecies on each of the major Moluccan archipelagos (White & Bruce 1986, Coates & Bishop 1997). The geographically proximate subspecies to Peleng is *P. g. lineolata* from the Sula Islands of Taliabu, Seho and Sanana (White & Bruce 1986, Coates & Bishop 1997). Subspecies of *P. griseonota* differ quite remarkably in their main body coloration and potentially in song (Coates & Bishop 1997; FER pers. obs. on Buru and Seram). We did not knowingly hear any *P. griseonota* on Peleng. However, the birds we observed strongly resembled those seen and photographed on Taliabu by FER only a few days later (Rheindt 2010). Based on this superficial resemblance, we suspect that the Peleng population is probably attributable to *P. g. lineolata* and does not deserve subspecific recognition, but this awaits confirmation.

HELMETED MYNA *Basilornis galeatus*

A few seen daily, and the species was photographed and sound-recorded from 700 m to over 900 m in western Peleng (FER, FV; 22–31 March 2009). Noted daily in the lowlands

of Peleng on 5–9 April 2009 (FV) and 20–21 April 2009 (FER). Seen on numerous occasions at 500–800 m in western Peleng (MI) feeding on fruits in forest habitats, in flocks of up to 14 (2 October 2004). The species was usually seen in secondary forest with large clearings. Endemic to the Banggai and Sula islands (White & Bruce 1986, Coates & Bishop 1997), records on Banggai and Peleng had previously not exceeded 200 m (Indrawan *et al.* 1997). Our records reveal that the elevational range in the Banggai archipelago matches that on Sula, where it has been recorded to 1,100 m (Davidson *et al.* 1991, Coates & Bishop 1997, Stones *et al.* 1997; FER pers. obs.).

SULAWESI MYZOMELA *Myzomela chloroptera* (undescribed species?)

Males and females were seen and photographed almost daily at flowering shrubs and trees in clearings and the forest interior in western Peleng, from 700 m to over 900 m (FV & FER; 23–30 March 2009). These are the first records on Peleng, although K. D. Bishop saw an unidentified small honeyeater on Banggai Island in November 1981 (White & Bruce 1986). The identification of our birds was unambiguous, as there are no confusion species in the region with similar red (male) or red-faced (female) plumages.

We regard Sulawesi *Myzomela M. chloroptera* as specifically distinct from neighbouring taxa (e.g. Wakolo *Myzomela M. wakoloensis*, Banda *Myzomela M. boiei* and Scarlet *Myzomela M. sanguinolenta*) based on plumage differences (following Salomonsen 1967, Wolters 1979, Rheindt & Hutchinson 2007, Higgins *et al.* 2008). From our brief observations, the birds on Peleng did not noticeably differ from those on mainland Sulawesi and Taliabu (Sula Islands). The species was found on Taliabu <20 years ago and the discoverers suggested it might represent an undescribed subspecies (Davidson *et al.* 1991, Stones *et al.* 1997). Meanwhile, most authors have provisionally subsumed the Taliabu population under nominate *M. chloroptera* from north and central Sulawesi, whilst acknowledging that future research may reveal it to be a new subspecies (Coates & Bishop 1997, Higgins *et al.* 2008). Further studies are needed to determine whether the population on Peleng merits treatment as an endemic subspecies or should be included within the nominate race from Sulawesi. Alternatively, the Peleng birds may prove more closely related to the Taliabu population and may together form a novel subspecies.

BLACK SUNBIRD *Nectarinia aspasia auriceps*

Small numbers observed approximately once every two days at flowering shrubs and trees in habitats from degraded orchards to undisturbed montane forest in western Peleng, from sea level to over 900 m (FER, FV; 22–31 March 2009). Although previously recorded on Peleng, no elevational data have been published from there. Coates & Bishop (1997) placed the upper elevation on Sulawesi at 800 m, whilst Davidson *et al.* (1991) recorded the species to c.450 m on Taliabu. However, recent field observations indicate that these upper elevational limits for Sulawesi and Taliabu are too low by at least 300 m on both islands (FER pers. obs.). Our Peleng records reconfirm the broad elevational range of this taxon on smaller Wallacean islands.

GREY-SIDED FLOWERPECKER *Dicaeum celebicum sulaense*

Observed in a wide range of wooded habitats in western Peleng, from near sea level to above 900 m (FER, FV; 22–31 March 2009). MI encountered it over a similarly wide elevational and habitat range. The population on the Banggai Islands is attributed to *D. c. sulaense* which otherwise occurs in the Sula archipelago (White & Bruce 1986, Coates & Bishop 1997), and indeed the distinctive grey (rather than black) abdominal stripe of this subspecies was visible on several males. No previous elevational data have been published for the Banggai

Islands, although it occurs to 800+ m on Taliabu in the Sula Islands (Davidson *et al.* 1991, Coates & Bishop 1997, Stones *et al.* 1997).

Discussion

We provide details of 16 new bird records for the Banggai Islands, including at least one species ('Peleng Leaf Warbler' *Phylloscopus* taxon novum)—and potentially five subspecies—that may be new taxa to science. New island records generally pertain to montane species that have previously gone unnoticed because most field workers have operated mainly in the lowlands (*Ducula forsteni*, *Ptilinopus superbus*, *Orthotomus cucullatus*, *Myzomela chloroptera*, *Rhipidura teysmanni* and *Phylloscopus* taxon novum). On the other hand, several species might have been overlooked in the past due to their shy or inconspicuous nature, and because knowledge of their voice is prerequisite for detecting them (e.g. *Surniculus lugubris* and *Locustella fasciolata*). Other species may have avoided detection because they are difficult to identify in the field (e.g. *Aerodramus vanikorensis*, *A. sororum*, *Corvus enca*, *L. fasciolata*, *Phylloscopus borealis*, *Phylloscopus* taxon novum, and *Pachycephala griseonota*). One new record refers to a passage migrant that only occurs in the region during a short period (*Hirundapus caudacutus*), and two other new records pertain to species that may have expanded their ranges recently (*Hieraaetus kienerii* and *Streptopelia chinensis*).

Twelve of our 16 new bird records refer to species that occur both to the east (Sula Islands) and to the north / west (Sulawesi): *Hieraaetus kienerii*, *Ducula forsteni*, *Streptopelia chinensis*, *Hirundapus caudacutus*, *Aerodramus vanikorensis*, *A. sororum*, *Corvus enca*, *Locustella fasciolata*, *Phylloscopus borealis*, *Orthotomus cucullatus*, *Myzomela chloroptera* and *Rhipidura teysmanni*. These new records close an artefactual gap in their species' distributions. On the other hand, two of the new Banggai species are absent from the Sula archipelago, although they do occur on Sulawesi: *Ptilinopus superbus* and *Surniculus lugubris*. For these two, our new records establish a slight range extension from Sulawesi to its eastern satellite islands, although *P. superbus* also occurs on some of the northern Moluccas, rendering its absence on Taliabu even more surprising. Most significantly, one or two new Banggai records are of species that otherwise occur only to the east in the Sula archipelago and the Moluccas: *Pachycephala griseonota* and *Phylloscopus poliocephalus*. The latter is probably the species complex most closely related to the new 'Peleng Leaf Warbler' (unpubl. data). For these two species complexes, our new Banggai records constitute a considerable range extension from the Moluccas to Peleng in the immediate vicinity of Sulawesi.

Finally, our field work has uncovered new taxonomic information not only pertaining to the new *Phylloscopus* taxon, but also the uncertain taxonomic affinities of several Banggai birds. Observations and photographs highlight the confusing taxonomic situation in *Dicrurus hottentottus* and suggest that the current treatment of Banggai birds within Sulawesi *D. h. leucops* is flawed. Novel morphological data call into question previous taxonomic treatment of the Banggai population of *Prioniturus platurus*. A population of *Rhipidura teysmanni* on Peleng appears to be vocally distinct and—if corroborated—deserves recognition at subspecies level. Similarly, our vocal data are strongly suggestive of biological species status for *Zosterops (atrifrons) subatrifrons*, although we prefer to maintain subspecific treatment pending further data. Finally, sound-recordings demonstrate that *Pitta erythrogaster dohertyi* (occasionally treated as a species) should be treated at subspecific rank.

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Appendix

Because Fig. 6 in Rheindt (2010, *Bull. Brit. Orn. Cl.* 130: 33–51) was not printed correctly, we take the opportunity to reproduce it here. Sonograms of vocalisations of *Bradypterus* bush warblers. X-axis = time in seconds (0.5 seconds per tick), y-axis = frequency in kHz (2 kHz per tick). All sonograms are at identical scale. (A) 'Taliabu' Bush Warbler *Bradypterus* sp. by F. E. Rheindt (April 2009, Taliabu); (B) Benguet Bush Warbler *B. seebohmi* by R. O. Hutchinson (February 2007, Mount Polis, Luzon, Philippines); (C) Russet Bush Warbler *B. mandelli* by D. Farrow (no date, Thailand, source: www.xeno-canto.org/asia); (D) Chestnut-backed Bush Warbler *B. c. castaneus* by P. Noakes (September 2006, Lore Lindu, central Sulawesi; source: www.xeno-canto.org/asia); (E) Chestnut-backed Bush Warbler *B. c. musculus* by R. O. Hutchinson (September 2006, Kobipoto Ridge, Seram). Dark areas below 5 kHz in sonogram A are mechanical sound pollution from equipment. Note that the undescribed Taliabu birds (A) more closely resemble *B. mandelli* (C) in terms of frequency (centred around 6 kHz), and resemble *B. mandelli* (C) and *B. seebohmi* (B) in exhibiting a single repeated call element, as opposed to the *B. castaneus* complex (D, E) whose vocalisations involve 2–3 call elements given in rapid succession. In acoustic impression, Taliabu birds are most similar but not identical to *B. mandelli*.

